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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,685	10/17/2003	James M. Pinchot	JMPE 5 00005	9338
27885	7590	05/17/2005	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			VANORE, DAVID A	
			ART UNIT	PAPER NUMBER
			2881	
DATE MAILED: 05/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/687,685	PINCHOT, JAMES M.
	Examiner	Art Unit
	David A. Vanore	2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11 and 16-20 is/are rejected.
- 7) Claim(s) 12-15 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 17 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____.

***Double Patenting***

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1, 3-8, 10-16, 18, and 20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 3-15, 17, and 18 of copending Application No. 10/688,233. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

In determining that pending claims 1, 3-8, 10-16, 18, and 20 are the same invention as copending claims 1, 3-15, 17, and 18, the examiner has referred to MPEP Section 804 and the test guidelines described therein, quoted below:

A reliable test for double patenting under 35 U.S.C. 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

The difference in wording between the claims, specifically in pending claims 1 and 16 versus copending claims 1 and 15, is that the term "collimator" in the pending application has been replaced by the term "micro-reactor" in the copending application.

The differences in the claims that the replacement of these terms creates has been considered by looking to the subject matter defining the method steps in pending claims 1, 3-8, and 15, and the device limitations recited in claims 16, 18, and 20 versus the corresponding method and device claims of the copending application.

The examiner has determined that following the method steps of pending claims 1, 3-8, and 10-15 would directly infringe on the corresponding method steps of the copending application and vice versa, though the word describing the article produced is different. The same rationale is true for the pending device claims 16, 18, and 20 and the corresponding device claims in the copending application, claims 15, 17, and 18.

Therefore, despite the difference in wording describing the device and its method of manufacture, the subject matter of the claims recite the same invention and are therefore rejected under the heading of statutory double patenting as applied under 35 U.S.C. 101.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 16-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pellegrino et al. (USPN 5,606,589)

Pellegrino teaches a method of fabricating a collimator comprising providing a plurality of metal foil layers, which are shaped by lithographic photo-etching which are stacked, aligned, and connected to form a collimator (Col. 4 Lines 48-60) as recited in claims 1 and 4.

Regarding claims 2 and 17, Pellegrino et al. teaches that the metal foil layers are composed of brass (Col. 4 Lines 49-51), which has a density of 8.553 g/cm<sup>3</sup>.

Regarding claims 3 and 18, Pellegrino et al. teaches that each metal layer has a thickness of 101.6 microns, which is less than 400 microns (Col. 5 Lines 39-44).

Regarding claims 5 and 6, the stacked foil layers form a plurality of apertures (31) each defined by a central axis (33) formed through a plurality of layers, where the central axis is the reference by which the apertures are aligned, thus apertures (31) define alignment openings formed in a plurality of layers. Note Fig. 2 and Col. 5 Line 14 through Col. 6 Line 9, and also Col. 11 Lines 11-55.

Regarding claims 7 and 16, Pellegrino et al. teaches that the plurality of metal foil layers are brazed together (Col. 6 Lines 9-13). Brazing is a process which inherently requires that the brazing material have a different composition than the composition of that which is being bonded by brazing, in the instant case, metal layers.

Regarding claim 8, Pellegrino et al. teaches that plural metal foil layers are brazed together as pointed out above. Brazing the facing surfaces of two objects together requires that one side of one of the surfaces be coated with brazing metal to

adhere the two surfaces together. In the case of Pellegrino et al., there are a plurality of layers (Fig. 1 Items 21-29) which are brazed together. Between each layer, two facing sides of adjacent layers abut, at least one of these facing sides must be coated with brazing metal, or the foil stack will not be bonded, as required in Pellegrino et al.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-11 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegrino et al. in view of Norris et al. (USPN 4,869,421).

Pellegrino et al. teaches all the required limitations of claims 1, 7, and 16 as pointed out above, but fails to disclose that a vacuum brazing method is utilized where the brazing material has an average density of 8.5 g/cm<sup>3</sup> at least and is coated on the metal layer with a thickness of less than 10 microns.

Norris et al. teaches a method of joining fine titanium structures in a vacuum brazing process where a metal foil layer element is coated with a brazing metal comprising copper where the coated brazing metal has a thickness of 0.00025 inches, or 6.35 microns. The density of the brazing metal copper is 8.9 g/cm<sup>3</sup>.

Using the brazing materials and method of Norris et al., when applied to Pellegrino et al., provides the brazing of fine metal structures such that metal foil components are sufficiently bound, but not crushed in the brazing process. Norris et al.

teaches at Col. 1 Lines 41-58 that using other diffusion bonding and brazing techniques in metal foil bonding applications can crush delicate structures and cause erosion of the metal foils where too much brazing metal is present between layers of metal foil.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the brazing method of Norris et al. to braze the metal foil layers of Pellegrino et al. together because the method of Norris et al. enables the production of metal foil structures with reduced risk of being crushed or eroded in the fabrication process. This produces a metal foil stack more reliably and reduces waste and cost.

***Allowable Subject Matter***

Claims 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to teach the product of the process of manufacture recited in claim 1 further comprising the step of generating a computer image of the formed metal foil layers or collimator subsequent to the step of connecting said formed metal foil layers. Claims 14 and 15 depend on claims 12 and 13 respectively and contain allowable subject matter by virtue of their dependency.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The examiner further cites the following US Patent Documents which teach collimation assemblies comprising metal stacks and brazing materials and methods:

USPN 4,951,305 to Moore et al.

USPN 6,185,278 to Appleby et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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